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ABSTRACT

Qualitative and quantitative data are presented in this evaluation of the curricular, personnel, and financial status of Miramar College's program in aviation maintenance. The report first provides the results of an interview with the program chairperson, which sought information on program objectives and goals and their determination, the extent to which the goals were being achieved, the importance of the program to the community, major program changes and outcomes of the past three years, predicted changes for the future, the impact of a reduction in program offerings, adverse influences on the program, suggestions for improving outcomes and reducing costs, and types of equipment and services used in the program. The bulk of the report provides data tables summarizing, for the years 1975-76 through 1977-78: (1) program staffing costs and personnel workload: (2) average daily attendance, classes offered, students enrolled, and degrees awarded: (3) job placement percentages: (4) capital equipment outlay: (5) instructional costs: and (6) audio-visual/learning resource expenditures. The report concludes with a list of data sources used during the evaluation. (JP)

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ED195294

MIRAMAR COLLEGE PROGRAM EVALUATION

Aviation Maintenance

Bruce Moriyama

and

Leslie Brumley

The San Diego Community College District

3375 Camino del Rio South

San Diego, CA 92108

February 1, 1980

JC 800 588

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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February 1, 1980

TO: Thoyd Latham, Miramar College

FROM: Bruce Moriyama BM and Leslie Brumley LB

SUBJECT: MIRAMAR COLLEGE PROGRAM EVALUATION - AVIATION MAINTENANCE

The following is the Miramar College Program Evaluation for the Aviation Maintenance Program which includes the following:

I The Program Chairman Questionnaire Results

II The Program Staffing Summary

III The Program Enrollment Data

IV The Job Placement Data

V The Capital Equipment Outlay Data

VI The Instructional Cost Data

VII The Audio Visual/Learning Resource Cost Data

VIII The Program Summary

IX The Program Evaluation Sources

It is hoped that the attached will be of some assistance in your decision making process.

BRM:LAB:jb

Attachments

This report is based upon information received from numerous District sources. The accuracy/validity of the information provided within this report is solely the responsibility of the site/source from which it is received. Any unauthorized additons or corrections not approved by Research & Planning Department invalidates the findings of this report.

MIRAMAR COLLEGE PROGRAM EVALUATION - AVIATION MAINTENANCE

I THE PROGRAM CHAIRMAN QUESTIONNAIRE RESULTS

The following information was gathered in a face-to-face interview between the Program Chairman and the Administrative Services Analysts. The purpose of the interview is to assess the program's current situation.

QUESTIONNAIRE RESULTS

AVIATION MAINTENANCE TECHNOLOGY PROGRAM
PROGRAM CHAIRMAN: Chuck Elame

1) WHAT ARE THE OBJECTIVES/GOALS OF YOUR PROGRAM? HOW ARE THEY DETERMINED?

The broad objectives are to train students to be aviation mechanics in the areas of (A) airframe and (B) power plant technology. This training is aimed at preparing these students for entrance into the workforce in general aviation and trunk (transport) air. The program is set up so that all levels of the public may enter. The curriculum includes 2,000 hours of instruction to be completed within a two-year period, and students attend class five hours per day, Monday thru Friday.

The objectives/goals are established by an outside advisory committee and the Federal Aviation Administration. The FAA determines quality standards and the advisory committee helps determine community needs.

2) TO WHAT EXTENT ARE THESE PROGRAMS OBJECTIVES/GOALS BEING ACHIEVED? HOW DO YOU MEASURE THE ACHIEVEMENTS?

According to the FAA, the Aviation Maintenance Program is meeting all the pre-established goals and correctly following FAA guidelines.

The Aviation Program also measures their achievements in the number of students who pass the FAA test. (All potential aviation mechanics must pass this test before they enter the work force). Over 80% of the program graduates pass the test on the first take and over 90% of the graduates pass after re-examination. The FAA follows up on test results by sending computer printout results to the Aviation Department. The FAA also evaluates the program by:

a) Unannounced spot checks.
b) Determining materials/resource standards.
c) Analyzing classroom space requirements.
d) Establishing student/teacher ratio (25:1).
e) Making sure records are maintained on all students during their two years.

3) COMMENT ON THE IMPORTANCE OF THE PROGRAM TO THE COMMUNITY.

a) This program is the only avaiation maintenance program south of Orange Coast Community College.

b) There are many airfields and manufacturing companies in this area and demand for mechanics is quite high. (There are approximately five jobs available per graduate).

4) HAVE ANY MAJOR PROGRAM CHANGES TAKEN PLACE DURING THE PAST THREE YEARS?

a) The unit allocation for students has increased from 46 to 85.

b) The Aviation Program will be divided into two areas as of fall, 1979. The student can major in (1) airframe technology, or (2) power plant technology.

c) Constant increase in enrollment.

5) WHAT FUTURE CHANGES WOULD YOU PROJECT (DEPARTMENTAL LEVEL)?

The department plans to restructure the delivery of curriculum (content will not change). The current five hours/day, five days/week, is not a very flexible one for the student.

6) DESCRIBE PROGRAM OUTCOMES OVER THE PAST THREE YEARS, INCLUDING SUCH THINGS AS:

a) NUMBER OF A.S. DEGREES: The number of degrees given over the past few years is not known; however, there were 32 graduates this last semester.

b) NUMBER OF CERTIFICATES OF ACHIEVEMENT. Approximately 28-37 per semester.

c) JOB PLACEMENTS. Approximately 90% enter the workforce in the aviation maintenance field upon completion of this program. However, this program does not provide a job placement service.

d) STUDENT SUCCESS RATE. About 90% complete the program. Approximately 85-90% of graduates enter the workforce; however, San Diego has a depressed wage scale and 50-55% leave the area.

e) TRANSFERS TO 4-YEAR INSTITUTIONS. A maximum of 5% go on to a 4-year institution. San Jose State is the only 4-year school in California offering aviation maintenance technology.

f) CANCELLED CLASSES. They never have a cancelled class.

g) UNDER/OVERLOADS OF CONTRACT OR REGULAR STAFF. FAA determines the student/teacher ratio (25:1). There are six staff members and all maintain the same workload.

7) WHAT WOULD THE IMPACT BE ON STUDENTS AND/OR OTHER PROGRAMS IF PROGRAM OFFERINGS ARE REDUCED? (SPECIFIC RESPONSE NEEDED, NOT GENERALIZATION).

There would be a critical impact on students since there is no other school in the area to service their training needs. Also the job needs of the community are very high right now.

8) WHAT OTHER LOCAL PROGRAM OPTIONS WOULD BE AVAILABLE TO STUDENTS IF PROGRAM OFFERINGS WERE REDUCED OR ELIMINATED?

None.

9) CAN YOU IDENTIFY ANY FACTORS, EITHER INTERNAL OR EXTERNAL, THAT HAVE HAD AN ADVERSE INFLUENCE ON YOUR PROGRAM?

a) The internal budget allocation has been cut in half.
b) Enrollment has been increasing and they are running out of space, materials and resources.
c) Need more staff. Teachers are hired on an hourly basis and teaching salaries are much less than private industry salaries.
d) No money is coming in from external sources.

10) WHAT SPECIFIC SUGGESTIONS DO YOU HAVE FOR IMPROVING PROGRAM OUTCOMES?

a) Secure external funding sources--curriculum writers needed to obtain this funding.
b) Need clerical support staff.
c) Need access to outside surplus materials (planes, etc.)

11) WHAT SPECIFIC SUGGESTIONS DO YOU HAVE FOR REDUCING PROGRAM COSTS?

a) Greater productivity from instructors (instead of spending time performing clerical duties).
b) More efficient program design.

12) COULD THE PROGRAM BE COMBINED WITH SOME OTHER PROGRAM, OR COULD IT BE REORGANIZED IN SOME WAY THAT ITS ESSENTIAL ELEMENTS ARE RETAINED BUT COSTS ARE REDUCED?

The program could be reorganized by having non-instructional help doing basic needs analysis to prevent cutbacks in the wrong areas.

13) ARE PERSONNEL COSTS APPROPRIATE? ARE PROFESSIONALS DOING PROFESSIONAL WORK OR COULD THE WORK, IN SOME AREAS, BE DONE BY PARAPROFESSIONALS?

a) Salary levels for instructors too low to compete with outside work force; entry-level mechanics make more money.

b) Paraprofessionals cannot teach since FAA requirements indicate all teaching staff must have B.A. degree.

c) Teachers are doing clerical work when support staff should be used.

14) COULD ANY WORK BE ROUTINIZED AND ACCOMPLISHED IN SOME ECONOMICAL AND EFFICIENT MANNER?

There is some inefficiency that should be eliminated when the program is restructured.

15) WHAT TYPES OF EQUIPMENT ARE USED IN THE CLASSROOM AND HOW OFTEN ARE THEY USED (AUDIO-VISUAL, EDUCATIONAL TELEVISION, ETC.)?

a) All types of AV equipment is used as teaching aids (film projectors, overheads, slide/tape instruction modules, etc.)

b) The use is constant.

c) All equipment is located at the Learning Resource Center.

16) WHAT OTHER CAMPUS SERVICES ARE UTILIZED AND HOW MUCH (LEARNING CENTER, REPROGRAPHICS, SPECIAL LIBRARY SERVICES, ETC.)?

a) The Learning Center is used a lot.

b) Many of the resource books and periodicals need updating.

c) The copy machine is used extensively.

II THE PROGRAM STAFFING SUMMARY

The following information is presented to give a better idea of the Certificated/Classified and Hourly/Contract/Regular personnel, use of Paraprofessionals, Certificated staff workload and an overview of program costs.

MIRAMAR COLLEGE PROGRAM REVIEW WORKSHEET

PROGRAM AVIATION MAINTENANCE

1. Listed below are the number of all hourly and contract/regular certificated staff and monies spent on salaries for the following school years:

	1975-76	1976-77	1977-78
# hourly personnel (Certificated)	.18 FTE	1.0 FTE	.68 FTE
# contract personnel (Certificated)	5	4	4
$ spent on hourly salaries	$ 7,640	$14,438	$11,976
$ spent on contract salaries	$73,991	$70,881	$66,990
TOTAL $ spent on salaries	$81,631	$85,319	$78,966

(No fringe benefits included.)

It should be noted that the full-time equivalent in the numbers and the salaries of hourly certificated personnel has been constantly changing, while the number of contract personnel and their salaries have remained fairly constant.

2. In the following table, the only noticeable change has been the increase in the amount of classified/regular monies spent on salaries from 1975-78:

	1975-76	1976-77	1977-78
# hourly personnel (Classified)	0	0	0
# regular personnel (Classified)	1	1	1
$ spent on hourly salaries	0	0	0
$ spent on regular salaries	$5,807	$6,674	$9,924
TOTAL $ spent on salaries	$5,807	$6,674	$9,924

This change can be attributed to the annual increases of regular classified staff.

MIRAMAR COLLEGE PROGRAM REVIEW WORKSHEET

PROGRAM AVIATION MAINTENANCE

3. Due to credential/licensing requirements, all Aviation Maintenance instructors must have their educational and Federal Aviation Administration credentials. Therefore, no paraprofessionals can be used:

AREA	NUMBER OF STAFF THAT COULD BE REPLACED
None - Must have credential license.	
Presently there is no clerical staff. If a clerical person was provided, it could save the certificated staff members 2 hours a day each for a total of 8 hours a day.	

There is a need for more clerical assistance.

4. The 1975-78 workload of certificated staff is shown below. It shows an overall increase (basically in WSCH/office hours);

	1975-76	1976-77	1977-78
Increased - - - - - -	✓	✓	✓
Constant - - - - - -			
Decreased - - - - - -			

5. The faculty load table has been designed to indicate the increases/decreases in faculty workload as expressed in weekly student contact hours:

PROGRAM	FACULTY LOAD			% INCREASE	% DECREASE	CONSTANT
	1975-76	1976-77	1977-78	1975-78	1975-78	
AVIATION MAINTENANCE	9,047.25	10,159.25	8,521.0		526.25 or Approx 6%	8,521.0

This has been done to give a visual three-year comparison of the teaching workload.

MIRAMAR COLLEGE PROGRAM EVALUATION

FACULTY LOAD

AVIATION (Program) - 1975-76 (Year)

INSTRUCTOR'S NAME	WSCH	INSTRUCTOR'S NAME	WSCH
HOOVER	225.0	ETTEL	360.0
	337.5		300.0
	250.0		442.0
	375.0		360.0
TOTAL	1,187.5		715.0
		TOTAL	2,177.0
ELAME	382.5		
	255.0	MCAULIFFE	67.5
	250.0	TOTAL	67.5
	428.75		
TOTAL	1,316.25	MALPASS	375.0
			250.0
STAFF	330.0	TOTAL	625.0
	220.0		
	160.0	WEBER	375.0
	170.0		250.0
TOTAL	900.0		428.75
			500.0
		TOTAL	1,553.75

12 Continued on Next Page - - -

MIRAMAR COLLEGE PROGRAM EVALUATION

FACULTY LOAD

AVIATION (Program) - 1975-76 (Year)

INSTRUCTOR'S NAME	WSCH	INSTRUCTOR'S NAME	WSCH
IRWIN	144.0		
TOTAL	144.0		
TIFFIT	-----		
TOTAL	-0-		
GANDERTON	255.0		
	463.75		
TOTAL	718.75		
LAFRANCE	130.0		
	227.5		
TOTAL	357.5		
GRAND TOTAL	9,047.25		

MIRAMAR COLLEGE PROGRAM EVALUATION

FACULTY LOAD

AVIATION (Program) - 1976-77 (Year)

INSTRUCTOR'S NAME	WSCH	INSTRUCTOR'S NAME	WSCH
HOOVER	250.0	ETTEL	205.0
	375.0		292.5
	235.0		277.5
	352.5		352.5
TOTAL	1,212.5		411.25
			185.0
MALPASS	352.5	TOTAL	1,723.75
	235.0		
	240.0	MCAULIFFE	-----
	360.0	TOTAL	-0-
TOTAL	1,187.5		
		ELAME	220.0
WEBER	277.5		330.0
	185.0		230.0
	195.0		345.0
	130.0		382.5
	411.25		318.75
	352.5	TOTAL	1,826.25
TOTAL	1,551.25		
		Continued on Next Page - - - - - - - - - -	

MIRAMAR COLLEGE PROGRAM EVALUATION

FACULTY LOAD

AVIATION (Program) - 1976-77 (Year)

INSTRUCTOR'S NAME	WSCH	INSTRUCTOR'S NAME	WSCH
NEEL	185.0	GANDERTON	300.0
	277.5		360.0
	270.0	TOTAL	660.0
	405.0		
	330.0	GRAND TOTAL	10,159.25
	385.0		
TOTAL	1,852.5		
LEANO	28.5		
TOTAL	28.5		
WEIR	28.5		
TOTAL	28.5		
WELCH	85.5		
TOTAL	85.5		
STAFF	2.0		
	1.0		
TOTAL	3.0		

MIRAMAR COLLEGE PROGRAM EVALUATION

FACULTY LOAD

AVIATION (Program) - 1977-78 (Year)

INSTRUCTOR'S NAME	WSCH	INSTRUCTOR'S NAME	WSCH
HOOVER	210.0	ETTEL	185.0
	315.0		277.5
	225.0		6.0
	337.5		170.0
TOTAL	1,087.5		255.0
			250.0
ELAME	210.0		375.0
	322.5	TOTAL	1,518.5
	135.0		
	202.5	STAFF	2.0
	190.0		300.0
	285.0		200.0
TOTAL	1,345.0		8.0
		TOTAL	510.0
WEBER	205.0		
	307.5	MCAULIFFE	30.0
	150.0	TOTAL	30.0
	225.0		
	275.0	Continued on Next Page - - -	- - - - - - - -
	165.0		
TOTAL	1,327.5		

MIRAMAR COLLEGE PROGRAM EVALUATION

FACULTY LOAD

AVIATION (Program) - 1977-78 (Year)

INSTRUCTOR'S NAME	WSCH	INSTRUCTOR'S NAME	WSCH
LAFRANCE	240.0	LEANO	-----
	155.0	TOTAL	-0-
	24.0		
	230.0	LEY	-----
	345.0	TOTAL	-0-
TOTAL	994.0		
		CASEY	-----
WEIR	-----	TOTAL	-0-
TOTAL	-0-		
		GRAND TOTAL	8,521.0
WELCH	-----		
TOTAL	-0-		
NEEL	225.0		
	377.5		
	250.0		
	375.0		
	1.0		
	240.0		
	240.0		
TOTAL	1,708.5		

III THE PROGRAM ENROLLMENT DATA

Within this section entitled "Program Enrollment Data", the areas of program enrollment trends; statistical summary regarding classes, students, degrees and transfers; ADA data; and faculty load, have been presented. From this information, you can get a good overview of this program's enrollment situation from the number of classes offered each semester to the amount of ADA generated.

MIRAMAR COLLEGE PROGRAM EVALUATION

OVERVIEW OF COSTS TO RUN AVIATION PROGRAM

1975-76 School Year Costs		1976-77 School Year Costs		1977-78 School Year Costs	
Staffing	- $ 87,438.00	Staffing	- $ 91,993.00	Staffing	- $88,890.00
Capital Expenditures	- 11,485.06	Capital Expenditures	- 5,572.15	Capital Expenditures	- 7,662.39
Instructional	- 8,559.64	Instructional	- 6,778.90	Instructional	- 7,866.96
Audio Visual	- 971.68	Audio Visual	- 945.41	Audio Visual	- 833.14
TOTAL	$108,454.38	TOTAL	$105,289.46	TOTAL	$105,252.49
Number of Students	720	Number of Students	858	Number of Students	880
Cost per Student	$150.63	Cost per Student	$122.72	Cost per Student	$119.61
Approximate Amount of ADA* Collected	$387,108.24	Approximate Amount of ADA* Collected	$409,688.00	Approximate Amount of ADA* Collected	$386,136.13

*Approximation

MIRAMAR COLLEGE PROGRAM REVIEW WORKSHEET

PROGRAM AVIATION MAINTENANCE

Program enrollment data:

Trend in program enrollment:

.The number of class offerings has been increasing progressively each year while the number of cancelled classes remained the same for the first two years, but tripled in the third year.

.The amount of weekly student contact hours has been increasing annually while the ADA has remained steady at the 500 - 600 level.

	1975-76	1976-77	1977-78
No. of Classes Offered:	36	43	62
No. of Classes Cancelled:	4	4	18
Percent of Offered Classes Cancelled	11.11%	9.30%	29.03%

MIRAMAR COLLEGE PROGRAM REVIEW

AVIATION

	WSCH	
	Sub Total	Grand Total For Year
FALL - 1975	2,417.5	
SPRING - 1976	2,871.0	
SUMMER - 1976	3,758.75	
		9,047.25
FALL - 1976	3,242.0	
SPRING - 1977	3,312.5	
SUMMER - 1977	3,604.75	
		10,159.25
FALL - 1977	3,046.0	
SPRING - 1978	2,537.0	
SUMMER - 1978	2,938.0	
		8,521.0
GRAND TOTAL FOR ALL THREE YEARS		27,727.5

MIRAMAR COLLEGE PROGRAM REVIEW

AVIATION

		ADA	
		Sub Total	Grand Total For Year
FALL - 1975		146.83	
SPRING - 1976		181.07	
SUMMER - 1976		228.29	
			556.19
FALL - 1976		196.89	
SPRING - 1977		201.18	
SUMMER - 1977		218.93	
			617.00
FALL - 1977		182.57	
SPRING - 1978		167.21	
SUMMER - 1978		178.45	
			528.23
GRAND TOTAL FOR ALL THREE YEARS			1,701.42

MIRAMAR PROGRAM EVALUATION

TYPE OF PROGRAM: AVIATION MAINTENANCE

	1975-76	1976-77	1977-78
No. of Classes Offered	36	43	62
No. of Classes Cancelled	4	4	18
Averane No. of Students in Classes	22.5	22.0	20.0
No. of A. S. Degrees	60*	60*	60*
No. of Certificates of Achievement	70*	70*	70*
No. of Students Entering Program	Over 70 Students*	Over 70 Students*	Over 70 Students*
No. of Students Completing Program	69	68	65*
No. of Transfer Students to 4 Year Institutions	5%*	5%*	5%*
Total ADA	556.19	617.00	528.23
Total WSCH	9,147.25	10,159.25	8,521.00

*Note: Approximate Figures

The enrollment Weekly Student Contact Hours (WSCH) and Average Daily Attendance (ADA) figures are based on the District Master Schedule print-out by Census Week.

ADA CALCULATION FORMULAS

.The ADA calculation formula for conventional full semester courses:

$$\frac{\text{Census Week - 1 Enrollment} + \text{Census Week - 2 Enrollment}}{\text{Two}} \times \text{Contact Hours} = \text{Weekly Student Contact Hours}$$

Weekly Student Contact Hours x .911 ÷ 15 = ADA Figure

.The ADA calculation formula for independent study and work experience courses:

No. of Units Per Course x No. of Students Enrolled = Weekly Student Contact Hours

Weekly Student Contact Hours x .911 ÷ 15 = ADA Figure

MIRAMAR COLLEGE PROGRAM REVIEW

SEMESTER: FALL - DAY YEAR: 1975

TYPE OF PROGRAM (please circle): (AVIATION) POLICE FIRE

MASTER COURSE NO.	COURSE NO.	WSCH	AVERAGE ENROLLMENT FIGURE	A.D.A.
80441 } Hoover	001	225.0	22.5	13.67
80442 } Hoover	002	337.5	22.5	20.50
80443 } Elame	003	255.0	22.5	15.49
80444 } Elame	004	382.5	25.5	23.23
80445 } Staff	009	220.0	22.0	13.36
80446 } Staff	010	330.0	22.0	20.04
80447 } Ettel	011	240.0	24.0	14.58
80448 } Ettel	012	360.0	24.0	21.86
80450 - McAuliffe	021	67.5	22.5	4.10
	Total	2,417.5		146.83

MIRAMAR COLLEGE PROGRAM REVIEW

SEMESTER: FALL - EVENING YEAR: 1975

TYPE OF PROGRAM (please circle): (AVIATION) POLICE FIRE

MASTER COURSE NO.	COURSE NO.	WSCH	AVERAGE ENROLLMENT FIGURE	A.D.A.
NONE				

MIRAMAR COLLEGE PROGRAM REVIEW

SEMESTER: SPRING - DAY YEAR: 1976

TYPE OF PROGRAM (please circle): (AVIATION) POLICE FIRE

Based on 1st Census Week data. 2nd Census Week unavailable.

MASTER COURSE NO.	COURSE NO.	WSCH	AVERAGE ENROLLMENT FIGURE	A.D.A.
80441 Hoover	101	250.0	25.0	15.80
80442 Hoover	102	375.0	25.0	22.78
80443 Malpass	103	250.0	25.0	15.18
80444 Malpass	104	375.0	25.0	22.78
80445 Weber	109	250.0	25.0	15.18
80446 Weber	110	375.0	25.0	22.78
80447 Ettel	111	200.0	20.0	12.15
80448 Ettel	112	300.0	20.0	18.22
80449 - Irwin	022	144.0	16.0	8.75
89506 - Ettel**	X049	2.0	2.0	0.12
*85001 Tiffit	039	Cancelled -	- - - - - - - - - - - - - -	- - - - - - - - - - - -
*85002 "	039	Cancelled -	- - - - - - - - - - - - - -	- - - - - - - - - - - -
*85003 "	039	Cancelled -	- - - - - - - - - - - - - -	- - - - - - - - - - - -
*85004 Tiffit	039	Cancelled -	- - - - - - - - - - - - - -	- - - - - - - - - - - -
	Total	2,521.0		153.74

*Note: According to the records of Student Services, there were no classes/grades for these Master Numbers. The figures used within this report are averages suggested by the department chairperson.

**Note: According to the records of Student Services, there were no classes/grades for these Master Numbers.

MIRAMAR COLLEGE PROGRAM REVIEW

SEMESTER: SPRING - EVENING YEAR: 1976

TYPE OF PROGRAM (please circle): (AVIATION) POLICE FIRE

Based on 1st Census Week data. 2nd Census Week unavailable.

MASTER COURSE NO.	COURSE NO.	WSCH	AVERAGE ENROLLMENT FIGURE	A.D.A.
90440 } Staff	001	180.0	1.8	10.93
90441 } Staff	002	170.0	1.8	16.40
	Total	350.0		27.33

MIRAMAR COLLEGE PROGRAM REVIEW

SEMESTER: SUMMER - DAY YEAR: 1976

TYPE OF PROGRAM (please circle): (AVIATION) POLICE FIRE

MASTER COURSE NO.	COURSE NO.	WSCH	AVERAGE ENROLLMENT FIGURE	A.D.A.
80441 - Ganderton	005	255.0	25.5	15.49
80442 - Ettel	007	360.0	24.0	21.86
80443 - Ganderton	006	463.75	26.5	28.17
80444 - Ettel	008	715.0	22,0	43.42
80445 - Elamé	005	250.0	25.0	15.18
80446 - Weber	007	500.0	25.0	30.37
80447 - Elamé	006	428.75	24.5	26.04
80448 - Weber	008	428.75	24.5	26.04
	Total	3,401.25		206.57

MIRAMAR COLLEGE PROGRAM REVIEW

SEMESTER: SUMMER - EVENING YEAR: 1976

TYPE OF PROGRAM (please circle): (AVIATION) POLICE FIRE

MASTER COURSE NO.	COURSE NO.	WSCH	AVERAGE ENROLLMENT FIGURE	A.D.A.
90441 } LaFrance	005	130.0	13.0	7.90
90443 } LaFrance	006	227.5	13.0	13.82
	Total	357.5		21.72

MIRAMAR COLLEGE PROGRAM REVIEW

SEMESTER: FALL - DAY YEAR: 1976

TYPE OF PROGRAM (please circle): (AVIATION) POLICE FIRE

MASTER COURSE NO.	COURSE NO.	WSCH	AVERAGE ENROLLMENT FIGURE	A.D.A.
80441 } Hoover	101	250.0	25.0	15.18
80442 } Hoover	102	375.0	25.0	22.78
80443 } Malpass	103	235.0	23.5	14.27
80444 } Malpass	104	352.5	23.5	21.41
80445 } Weber	109	185.0	18.5	11.24
80446 } Weber	110	277.5	18.5	16.85
80447 } Ettel	111	205.0	20.5	12.45
80448 } Ettel	112	292.5	19.5	17.76
80450 - McAuliffe	021	Cancelled -	- - - - - - - - - - - - - -	- - - - - - - - - - - -
	Total	2,172.5		131.94

MIRAMAR COLLEGE PROGRAM REVIEW

SEMESTER: FALL - EVENING YEAR: 1976

TYPE OF PROGRAM (please circle): (AVIATION) POLICE FIRE

MASTER COURSE NO.	COURSE NO.	WSCH	AVERAGE ENROLLMENT FIGURE	A.D.A.
90440) Elame	103	220.0	22.0	13.36
90441) Elame	104	330.0	22.0	20.04
90442) Neel	111	185.0	18.5	11.24
90443) Neel	112	277.5	18.5	16.85
90444 - Leano	123	28.5	9.5	1.73
90445 - Weir	121	28.5	9.5	1.73
	Total	1,069.5		64.95

MIRAMAR COLLEGE PROGRAM REVIEW

SEMESTER: SPRING - DAY YEAR: 1977

TYPE OF PROGRAM (please circle): (AVIATION) POLICE FIRE

MASTER COURSE NO.	COURSE NO.	WSCH	AVERAGE ENROLLMENT FIGURE	A.D.A.
80441 } Hoover	101	235.0	23.5	14.27
80442 } Hoover	102	352.5	23.5	21.41
80443 } Malpass	103	240.0	24.0	14.58
80444 } Malpass	104	360.0	24.0	21.86
80445 } Neel	109	270.0	27.0	16.40
80446 } Neel	110	405.0	27.0	24.60
80447 } Ettel	111	185.0	18.5	11.24
80448 } Ettel	112	277.5	18.5	16.85
80449 - McAuliffe	121	Cancelled -	- - - - - - - - - - - - - -	- - - - - - - - - - - -
	Total	2,325.0		141.21

MIRAMAR COLLEGE PROGRAM REVIEW

SEMESTER: SPRING - EVENING YEAR: 1977

TYPE OF PROGRAM (please circle): (AVIATION) POLICE FIRE

MASTER COURSE NO.	COURSE NO.	WSCH	AVERAGE ENROLLMENT FIGURE	A.D.A.
90041) Elame	101	230.0	23.0	13.97
90042) Elame	102	345.0	23.0	20.95
90045) Weber	109	130.0	13.0	7.90
90046) Weber	110	195.0	13.0	11.84
90050 - Weir	121	Cancelled	- - - - - - - - - - - - - -	- - - - - - - - - - - -
90052 - Welch	122	85.5	9.5	5.19
90055 - Leano	123	Cancelled	- - - - - - - - - - - - - -	- - - - - - - - - - - -
90056 - Staff**	X370	2.0	2.0	.12
	Total	987.5		59.97

**Note: According to the records of Student Services, there were no classes/grades for these Master Numbers.

MIRAMAR COLLEGE PROGRAM REVIEW

SEMESTER: SUMMER - DAY YEAR: 1977

TYPE OF PROGRAM (please circle): (AVIATION) POLICE FIRE

MASTER COURSE NO.	COURSE NO.	WSCH	AVERAGE ENROLLMENT FIGURE	A.D.A.
80021 } Ettel	107	352.5	23.5	21.41
80023 } Ettel	108	411.25	23.5	24.98
80025 } Weber	107	352.5	23.5	21.41
80027 } Weber	108	411.25	23.5	24.98
80029 } Neel	107	330.0	22.0	20.04
80031 } Neel	108	385.0	22.0	23.38
80050 } Ganderton	105	300.0	24.0	18.22
80052 } Ganderton	106	360.0	24.0	21.86
80054 } Elame	105	318.75	25.5	19.36
80056 } Elame	106	382.5	25.5	23.23
80058 - Staff	X370	1.0	1.0	.06
	Total	3,604.75		218.93

MIRAMAR COLLEGE PROGRAM REVIEW

SEMESTER: SUMMER - EVENING YEAR: 1977

TYPE OF PROGRAM (please circle): (AVIATION) POLICE FIRE

MASTER COURSE NO.	COURSE NO.	WSCH	AVERAGE ENROLLMENT FIGURE	A.D.A.
NONE				

MIRAMAR COLLEGE PROGRAM REVIEW

SEMESTER: FALL - DAY YEAR: 1977

TYPE OF PROGRAM (please circle): (AVIATION) POLICE FIRE

MASTER COURSE NO.	COURSE NO.	WSCH	AVERAGE ENROLLMENT FIGURE	A.D.A.
80050 } Hoover	101	210.0	21.0	12.75
80051 } Hoover	102	315.0	21.0	19.13
80052 } Elame	103	210.0	21.0	12.75
80053 } Elame	104	322.5	21.5	19.59
80054 } Weber	109	205.0	20.5	12.45
80055 } Weber	110	307.5	20.5	18.68
80056 } Ettel	111	185.0	18.5	11.24
80057 } Ettel	112	277.5	18.5	16.85
80058 - McAuliffe	121	Cancelled	- - - - - - - - - - - - - -	- - - - - - - - - - - -
80059 - Ettel**	X370	6.0	6.0	.36
	Total	2,038.5		123.80

**Note: According to the records of Student Services, there were no classes/grades for these Master Numbers.

MIRAMAR COLLEGE PROGRAM REVIEW

SEMESTER: FALL - EVENING YEAR: 1977

TYPE OF PROGRAM (please circle): (AVIATION) POLICE FIRE

MASTER COURSE NO.	COURSE NO.	WSCH	AVERAGE ENROLLMENT FIGURE	A.D.A.
90041) Staff	101	Cancelled -	- - - - - - - - - - - - -	- - - - - - - - - - - -
90042) Staff	102	Cancelled -	- - - - - - - - - - - - -	- - - - - - - - - - - -
90045) Weber	109	Cancelled -	- - - - - - - - - - - - -	- - - - - - - - - - - -
90046) Weber	110	Cancelled -	- - - - - - - - - - - - -	- - - - - - - - - - - -
90048) LaFrance	103	165.0	16.5	10.02
90049) LaFrance	105	240.0	16.0	14.58
90050 - Weir	121	Cancelled -	- - - - - - - - - - - - -	- - - - - - - - - - - -
90052 - Welch	122	Cancelled -	- - - - - - - - - - - - -	- - - - - - - - - - - -
90053) Neel	111	225.0	22.5	13.67
90054) Neel	112	377.5	22.5	20.50
90055 - Leano	123	Cancelled -	- - - - - - - - - - - - -	- - - - - - - - - - - -
	Total	1,007.5		58.77

MIRAMAR COLLEGE PROGRAM REVIEW

SEMESTER: SPRING - DAY YEAR: 1978

TYPE OF PROGRAM (please circle): (AVIATION) POLICE FIRE

MASTER COURSE NO.	COURSE NO.	WSCH	AVERAGE ENROLLMENT FIGURE	A.D.A.
80065 } Hoover	101	225.0	22.5	13.67
80066 } Hoover	102	337.5	22.5	20.50
80067 } Elame	103	135.0	13.5	8.20
80068 } Elame	104	202.5	13.5	12.30
80069 } Neel	109	250.0	25.0	15.18
80070 } Neel	110	375.0	25.0	22.78
80071 } Ettel	111	170.0	17.0	10.32
80072 } Ettel	112	255.0	17.0	15.49
80073 - McAuliffe	121	30.0	10.0	1.82
80074 - Staff**	X370	2.0	2.0	.12
	Total	1,982.0		120.38

**Note: According to the records of Student Services, there were no classes/grades for these Master Numbers

MIRAMAR COLLEGE PROGRAM REVIEW

SEMESTER: SPRING - EVENING YEAR: 1978

TYPE OF PROGRAM (please circle): (AVIATION) POLICE FIRE

MASTER COURSE NO.	COURSE NO.	WSCH	AVERAGE ENROLLMENT FIGURE	A.D.A.
90041 } LaFrance	101	155.0	15.5	9.41
90042 } LaFrance	102	24.0	16.0	14.58
90045 } Weber	109	150.0	15.0	9.11
90046 } Weber	110	225.0	15.0	13.67
90048 - McAuliffe	121	Cancelled	- - - - - - - - - - - - - - -	- - - - - - - - - - - - -
90050 - Ley	122	Cancelled	- - - - - - - - - - - - - - -	- - - - - - - - - - - - -
90052 - Leano	123	Cancelled	- - - - - - - - - - - - - - -	- - - - - - - - - - - - -
90053 - Neel**	X370	1.0	1.0	.06
*90054 - Staff	X370	Cancelled	- - - - - - - - - - - - - - -	- - - - - - - - - - - - -
	Total	555.0		46.83

*Note: According to the records of Student Services, there were no classes/grades for these Master Numbers. The figures used within this report are averages suggested by the department chairperson.

**Note: According to the records of Student Services, there were no classes/grades for these Master Numbers.

MIRAMAR COLLEGE PROGRAM REVIEW

SEMESTER: SUMMER - DAY YEAR: 1978

TYPE OF PROGRAM (please circle): (AVIATION) POLICE FIRE

MASTER COURSE NO.	COURSE NO.	WSCH	AVERAGE ENROLLMENT FIGURE	A.D.A.
*80018) Davenport	270	Cancelled -	- - - - - - - - - - - - - -	- - - - - - - - - - - -
*80019) "	270	Cancelled -	- - - - - - - - - - - - - -	- - - - - - - - - - - -
*80020) "	270	Cancelled -	- - - - - - - - - - - - - -	- - - - - - - - - - - -
*80021) Davenport	270	Cancelled -	- - - - - - - - - - - - - -	- - - - - - - - - - - -
80022) LaFrance	105	230.0	23.0	13.97
80024) LaFrance	106	345.0	23.0	20.95
80026) Elamé	105	190.0	19.0	11.54
80028) Elamé	106	285.0	19.0	17.31
*80030 - Neel	X370	Cancelled -	- - - - - - - - - - - - - -	- - - - - - - - - - - -
80034) Ettel	107	250.0	25.0	15.18
80035) Ettel	108	375.0	25.0	22.78
80036) Weber	107	110.0	11.0	6.68
80037) Weber	108	165.0	11.0	10.02
*80038 - Casey	X370	Cancelled -	- - - - - - - - - - - - - -	- - - - - - - - - - - -
	Total	1,950.0		118.43

*Note: According to the records of Student Services, there were no classes/grades for these Master Numbers. The figures used within this report are averages suggested by the department chairperson.

MIRAMAR COLLEGE PROGRAM REVIEW

SEMESTER: SUMMER - EVENING YEAR: 1978

TYPE OF PROGRAM (please circle): (AVIATION) POLICE FIRE

MASTER COURSE NO.	COURSE NO.	WSCH	AVERAGE ENROLLMENT FIGURE	A.D.A.
90041) Staff	105	200.0	20.0	12.15
90043) Staff	106	300.0	20.0	18.22
90045) Neel	107	240.0	16.0	14.58
90047) Neel	108	240.0	16.0	14.58
*90709) Staff	270	Cancelled -	- - - - - - - - - - - - - - -	- - - - - - - - - - - -
*90711) "	270	Cancelled -	- - - - - - - - - - - - - - -	- - - - - - - - - - - -
*90713) Staff	270	Cancelled -	- - - - - - - - - - - - - - -	- - - - - - - - - - - -
90715 - Staff	270	8.0	2.0	.49
	Total	988.0		60.02

*Note: According to the records of Student Services, there were no classes/grades for these Master Numbers. The figures used within this report are averages suggested by the department chairperson.

IV THE JOB PLACEMENT DATA

The goal of the Aviation Maintenance program is to produce students/ graduates who can compete in the marketplace for the jobs available. Within this section we have covered student placement, job market availability, employment placement percentages, future job market projections, job placement in addition to information concerning the employment situations both locally and nationally.

MIRAMAR COLLEGE PROGRAM REVIEW WORKSHEET

PROGRAM AVIATION MAINTENANCE

Job placement data:

1. Job placement of students completing the program:

	1975-76	1976-77	1977-78
# students completing program	69	68	20
# students placed in field of study	21	17	5
# students in other type of employment	12	10	3
# unemployed	1	1	2
# transfer to 4-year institutions	---	---	---
# unknown	35	40	10

2. Job market availability ratio:

	1975-76	1976-77	1977-78
Approximate # jobs available	259	229	526
# jobs available/ student completing program	3.75	3.37	26.30
% of students obtaining positions in field of study	30%	25%	25%

MIRAMAR COLLEGE PROGRAM REVIEW WORKSHEET

PROGRAM AVIATION MAINTENANCE

Job placement data:

2. Job market availability ratio, continued:

The market for Aviation Maintenance workers is projected to increase this year. It has been estimated that placement may go as high as 75% but there is the possibility of relocating out of the San Diego area (i.e., Los Angeles, etc.) in order to find these opportunities.

The overall labor market has been depressed for the past few years due to the recent recessionary trends but future prospects look very good.

MIRAMAR COLLEGE PROGRAM REIVEW WORKSHEET

PROGRAM AVIATION MAINTENANCE

3. Employment placement percentages compared with like programs at other institutions:

TITLE OF PROGRAM	SCHOOL	YEAR	#/% PLACED IN FIELD OF STUDY
Airframe and Power Plant Technology	Orange Coast Community College	1975-76	6 / 50%
"	"	1976-77	3 / 23%
"	"	1977-78	20 / 83%

Please Note: Besides Miramar College, Orange Coast College is the only other institution in Southern California to offer this program.

PROGRAM AVIATION MAINTENANCE

4. Projections of future job market:

According to the State of California's Employment Development Department's publication "Manpower 1975-1980, San Diego County," the employment situation for those in the Aviation Maintenance field was as follows:

No. of Employed Persons			Percentage Change	
1970	1975	1980	70-75	75-80
23,500	13,700	15,800	-41.7	15.3

The employment period between 1970-1975 was particularly low due to a 40% decline in the field, while the period between 1975-1980 represented over a 13% projected increase. The recessionary trends of the early/mid 1970's created a lack of employment. The late 1970's/early 1980's are showing signs of better employment opportunities.

PROGRAM AVIATION MAINTENANCE

4. Projections of future job market , continued:

For Aviation Maintenance personnel in San Diego County, the breakdown of employment opportunities were as follows:

Industries	Number of Persons Employed 1975 (Actual)	1980 (Projected)	% Up or Down
Agriculture, Forestry Fishing	-0-	-0-	-0-
Mining	-0-	-0-	-0-
Construction	-0-	-0-	-0-
Manufacturing	836	1,018	22% ↑
Transportation, Communications, Utilities	675	830	23% ↑
Trade	17	16	6% ↓
Finance, Insurance, Real Estate	-0-	-0-	-0-
Services	8	7	13% ↓
Public Administration	1,679	1,787	6% ↑
TOTAL	3,215	3,658	14% ↑

The two leading areas in Aviation Maintenance for San Diego County are manufacturing and transportation. These will be the two areas where employment opportunities will be the best.

PROGRAM AVIATION MAINTENANCE

4. Projections of future job market, continued:

On a national level, from the United States Department of Labor, according to "The Occupational Outlook Quarterly for Spring, 1978," there is the following information:

Occupation	Estimated Employment 1976	Annual Average Anticipated Openings 1976-1987
Airplane Mechanic	110,000	5,200/year

Employment Prospects:

Employment expected to grow faster than average, but opportunities in various areas of aviation may differ. Good opportunities in general aviation; keen competition for airline jobs; opportunities in Federal Government dependent upon defense spending.

For San Diego County, according to the State of California's Employment Development Department's "Labor Supply and Demand, San Diego County, April - June, 1979":

Airframe and Powerplant Mechanic

Employment Prospects:

Occasional orders in San Diego. A surplus of applicants, few of whom have the required airframe and powerplant license. Some orders require multi-engine experience. The licensing and multi-engine experience are major job placement barriers in the San Diego market.

Although there is limited employment opportunities locally, it appears that nationally the situation is more promising.

PROGRAM AVIATION MAINTENANCE

4. Projections of future job market, continued:

Net demand from industry change:

1980 anticipated employment level	- 3,657	442
1975 actual employment level	- 3,215	
Expected replacement needs		+ 260
Total job opportunities from these sources		= 702
Average annual job opportunities		÷ 5
Volume of job openings per year		= 140

AVIATION MAINTENANCE TECHNOLOGY

The Aviation Maintenance Technology program includes classroom study and practical application in such subjects as aircraft structures; powerplants and sub-systems; and aircraft engine operations, maintenance, repair and servicing.

The Aviation Maintenance Technology Program is Federal Aviation Agency approved. The laboratory at Miramar College is officially designated as F.A.A. Aviation Maintenance Technical School No. 3418. The curriculum includes more than 1,000 hours of instruction and is designed to be completed within a two-year period, including four regular school semesters and two summer sessions. The student attends class five hours per day, Monday through Friday.

PROGRAM AVIATION MAINTENANCE

4. Projection of future job market, continued:

Aircraft Mechanics

Aircraft Mechanics (Airframe and Powerplant Technicians) service, repair, and overhaul aircraft bodies and engines to insure safety and dependability.

Aptitudes:

Mechanical ability, form and spatial perception, eye-hand coordination, good use of hands and fingers, ability to do detail work, average strength and agility.

Work Setting:

Inside, but frequently outside for emergency repairs. Work areas are noisy when engines are tested. Mechanics often work in awkward positions. Almost all buy their own hand tools. Employers: Schedule and Charter Airlines; Air Taxis, independent repair shops, and other companies in general aviation; aircraft manufacturing plants; and the armed forces.

Hiring Practices:

Licensing and additional qualifying experience are the major hiring requirements. Scheduled airlines prefer applicants licensed to work on both airframes and powerplants.

Current Employment:

This occupation employs about 30,000 in California. Most A & E mechanics work in metropolitan areas near airports.

PROGRAM AVIATION MAINTENANCE

4. Projection of future job market, continued:

Aircraft Mechanics, continued

Wages:

Licensed mechanics working for scheduled airplanes earn about $10.00/Hr. Licensed mechanics working in general aviation earn between $5.00 and $8.00/Hr. Unlicensed mechanics, who are permitted to work under the supervision of a licensed mechanic, earn less.

Outlook:

Some of the scheduled airlines have not hired mechanics in California in over 10 years, although they have been recalling workers laid off in the late 1960's. However, fairly strong growth in the number of jobs is expected. Other openings will occur as workers leave the occupation. There is a large supply of well-qualified mechanics who have been working in general aviation or the armed forces but would like to work for scheduled airlines. Opportunities will be best in cities like San Francisco, New York, Kansas City and Dallas, where maintenance bases for major airlines are located. Competition for jobs in general aviation is not as strong, because pay is lower. Growth is expected from turnover when the scheduled airlines begin hiring these mechanics.

PROGRAM AVIATION MAINTENANCE

4. Projection of future job market, continued:

Aircraft Mechanics, continued:

Outlook, continued:

Faster than average growth in employment expected through mid-1980's and some replacement needs. General aviation opportunities will be good (rough balance between supply and demand). Keen competition for jobs with scheduled airlines due to higher wages. Federal government jobs depend on defense spending.

Location of Jobs:

About half of work for scheduled airlines at airports near large cities; 1/3 of work for Federal government at military bases; the rest in general aviation at smaller airports all over the country.

MIRAMAR COLLEGE PROGRAM EVALUATION

PROGRAM AVIATION MAINTENANCE

5. Placed by Whom:

AGENCY	NUMBER OF STUDENTS* PLACED 1976	1977	1978
American Airlines**	←	40 - 49	→
Continental Airlines**	NO DATA AVAILABLE		
Crown Aviation**	30	33	36
Eastern Airlines	NO DATA AVAILABLE		
General Dynamics**	184	49	387
Gibbs Aviation**	NO DATA AVAILABLE		
Hughes Air West	NO DATA AVAILABLE		
Pacific Southwest Airlines**	---	104	165
Rohr Industries**	4 - 5 Persons Hired in Past 3 Years		
Ryan Industries**	2 Persons Hired in Past 3 Years		
Solar Industries**	4 - 5 Persons Hired in Past 3 Years		
Western Airlines**	NO DATA AVAILABLE		

*Figures represent the number of people placed in Aviation Maintenance field but do not necessarily mean graduates of the Miramar program.

**Note: More specific information is attached.

MIRAMAR COLLEGE PROGRAM EVALUATION

PROGRAM AVIATION MAINTENANCE

5. Placed by Whom, continued:

Additional data for number of students placed by industry:

American Airlines

Number of Aviation Mechanics hired:

1976)
1977) Between 40 - 49 individuals hired annually.
1978)

Any Miramar students - if so, how many?

None

Projected plans for hiring:

.Reductions/lay offs are the future plans.
.Less need for mechanics due to aircraft structure.
.Transfer of personnel fills vacancies.

Continental Airlines

Number of Aviation Mechanics hired:

1976)
1977) Unknown - Person in charge is new and there are no specifics available on numbers hired.
1978)

Any Miramar students - if so, how many?

None

This is a Los Angeles based airline and, therefore, secures workers from Golden West Air, Northrop, L.A. Tech. Inst., etc.

Projected plans for hiring:

.40 - 60 personnel to be hired within next six weeks, but after that no more bulk hiring.

MIRAMAR COLLEGE PROGRAM EVALUATION

PROGRAM AVIATION MAINTENANCE

5. Placed by Whom, continued:

Additional data for number of students placed by industry:

Crown Aviation

Number of Aviation Mechanics hired:

1976 - 30
1977 - 33
1978 - 36

Any Miramar students - if so, how many?

None

Projected plans for hiring:

.No future hiring.
.Staff remains 30 - 35 workers.

Eastern Airlines

Information requested by phone/letter to headquarters but there was no response.

General Dynamics

Number of Aviation Mechanics hired:

1976 - 184)
1977 - 49) Turnover approximately 15%
1978 - 387)

Any Miramar students - if so, how many?

.No specifics on SDCCD graduates as employees.
.General Dynamics major sources are military.

Projected plans for hiring:

.Projected hiring could be between 60 - 150 people per quarter depending on number of projects.

MIRAMAR COLLEGE PROGRAM EVALUATION

PROGRAM AVIATION MAINTENANCE

5. Placed by Whom, continued:

Additional data for number of students placed by industry:

Gibbs Aviation

Over the past year only 1 person hired which is the usual number hired by this company for a 1 year calendar period.

Hughes Air West

Information requested by phone/letter to headquarters but there was no response.

Pacific Southwest Airlines

Number of Aviation Mechanics hired:

1976 - Not Avilable)
1977 - 104) Low turnover rate.
1978 - 61)

Any Miramar students - if so, how many?

Data Unavailable

Projected plans for hiring:

.50 personnel to be hired in the next 6 months on a temporary status.

.Market extremely good for females.

Rohr Industries

Number of Aviation Mechanics hired:

1976)
1977) Over total 3 year period, 4 - 5 individuals hired.
1978)

Any Miramar students - if so, how many?

None

Projected plans for hiring:

.4 - 5 personnel to be hired within the next year.

MIRAMAR COLLEGE PROGRAM EVALUATION

PROGRAM AVIATION MAINTENANCE

5. Placed by Whom, continued:

Additional data for number of students placed by industry:

Ryan Industries

Number of Aviation Mechanics hired:

1976)
1977) Over total 3 year period, 2 individuals hired.
1978)

Any Miramar students - if so, how many?

None

Projected plans for hiring:

.None - In fact, layoffs pending.

Solar Industries

Number of Aviation Mechanics hired:

1976)
1977) Maintains 4 -5 persons in Aviation Maintenance field.
1978)

Any Miramar students - if so, how many?

Have hired some people from Miramar but have no specifics.

Projected plans for hiring:

.Will maintain 4 - 5 personnel for Aviation Maintenance staff.

MIRAMAR COLLEGE PROGRAM EVALUATION

PROGRAM AVIATION MAINTENANCE

5. Placed by Whom, continued:

Additional data for number of students placed by industry:

Western Airlines

Number of Aviation Mechanics hired:

1976)
1977) Unknown - No specific records maintained.
1978)

Any Miramar students - if so, how many?

None

Projected plans for hiring:

.No hiring foreseen in Los Angeles International area.

.Present staff in entire system: 2,000 Aviation Maintenance workers.

.Low turnover.

V THE CAPITAL EQUIPMENT OUTLAY DATA

The following are the actual capital equipment outlay expenditures for all three academic years in the Aviation Maintenance program. For your information, this does not include Evening program expenditures (destroyed due to reorganization) and the data was not stored in an orderly manner. Therefore, there is no guarantee that all information was examined.

Capital equipment outlay data:

The capital equipment outlay budget is not a conventional District budget in which monies are earmarked for specific purposes. Instead, monies are set aside for possible anticipated expenditures and then used if needed.

On the following pages there is a three-year comparison of actual expenditures with a comparison table of the amount budgeted, spent and over/under budget columns, in addition to a section on trends in this budget and a listing of constant expenditures:

MIRAMAR COLLEGE PROGRAM REVIEW WORKSHEET

PROGRAM AVIATION MAINTENANCE

Capital equipment outlay data:

1. ACTUAL EXPENDITURES	SCHOOL YEAR 1975-76	1976-77	1977-78
Fuel Assembly	$ 1,012.43	$ -	$ 807.00
Helicopter	500.00	-	-
Gear Assembly	56.14	-	-
Engine Test Cell	250.00	-	-
Propeller	604.20	-	450.00
Batteries	2,759.32	-	-
Testing Stand	1,288.54	-	-
Reflex Charger	2,650.00	-	-
Tool Holders	81.38	-	-
Live Center	43.46	-	-
Steel Car.	651.90	-	-
Tube Bender	88.68	-	-
Compressor Repair	139.03	-	-
Tensometer	159.00	-	-
Spring	12.72	-	-
Air Hammer	50.24	-	-
Contract Fee	700.00	-	-
Starter Tester	120.00	-	-
Time Recorder	210.41	-	-
Chalk Board	107.61	-	-
Arbor Press	-	188.63	-
Control Assembly	-	101.02	-
Engine	-	800.00	-
Chairs/Tables	-	92.54	-
Eye Wash Stand	-	330.00	-
Engine Gauge Unit	-	53.00	-
Sink & Pump	-	89.00	-
Low Wing & High Wing	-	612.68	-
Pumps	-	249.75	155.00

continued . . . .

MIRAMAR COLLEGE PROGRAM REVIEW WORKSHEET

PROGRAM AVIATION MAINTENANCE

Capital equipment outlay data:

1. ACTUAL EXPENDITURES	SCHOOL YEAR		
	1975-76	1976-77	1977-78
File Cabinet	-	399.98	-
Scale	-	75.00	-
Training Aids	-	203.60	-
Mock-up Equipment	-	100.00	-
Testing Set	-	103.35	40.00
Bookcase	-	188.60	-
Additional Funds (can't locate records)	-	1,985.00	-
Drain Shelf	-	-	659.50
Radio	-	-	535.24
Fuel Flow Analyzer	-	-	1,044.10
Tools/Protractor	-	-	1,399.90
Watt Meter	-	-	31.75
Permit Renewal	-	-	32.00
Parts	-	-	948.32
Spray Gun	-	-	189.06
Charger Repair	-	-	196.52
Power Supply	-	-	346.00
System Analyzer	-	-	31.00
Tachometer	-	-	318.00
Voltage Regulator	-	-	94.00
Internal Growler	-	-	72.00
Function Generator	-	-	313.00
TOTAL	$11,485.06	$5,572.15	$7,662.39

MIRAMAR COLLEGE PROGRAM REVIEW WORKSHEET

PROGRAM AVIATION MAINTENANCE DATE _____

2.

$ AMOUNT BUDGETED	AMOUNT SPENT			OVERSPENT BY	UNDERSPENT BY
	1976	1977	1978		
$10,257.00	$11,485.06			$1,228.06	
$8,028.00		$5,572.19			$2,455.80
$8,242.00			$7,662.39		$579.61

3. Trends in capital outlay expenditures:

Increasing _____ Constant _____ Decreasing ✓

% decrease from 75 - 78 = 33%

The total capital outlay expenditure for all three years was $24,719.65. The 1975-76 year expenditures represented 46% of the total, the 1976-77 year expenditures maintained 23% of the three year total, and 1977-78 represented 31% of the total. The average annual expenditure for this budget is $8,239.88.

4.

AREAS OF CONSTANT EXPENDITURES:	TOTAL SPENT (3 YEARS)
Fuel Assembly	$1,819.43
Pumps	$404.75
Testing Sets	$143.35
Propeller	$1,054.20
This amounts to 14% of all expenditures for the 3 year period.	

Most expenditures seem to be for one-time purchases of equipment that will not have to be replaced frequently.

Capital equipment outlay data, continued:

The constant capital expenditures are in the four areas of fuel assembly, propellers, pumps and testing sets. All four areas must be replaced due to daily useage. They are more expensive to purchase due to inflation and can fall victim to vandalism and age. The impact of increased enrollment upon this budget might, in turn, increase equipment expenditures.

VI THE INSTRUCTIONAL COST DATA

The following are the actual instructional cost data for all three academic years in the Aviation Maintenance program. For your information, this does not include Evening program expenditures (destroyed due to reorganization) and the data was not stored in an orderly manner. Therefore, there is no guarantee that all information was examined.

MIRAMAR COLLEGE PROGRAM REVIEW WORKSHEET

PROGRAM AVIATION MAINTENANCE

The instructional budget includes instructional training materials, duplication costs, etc., which support the instruction program. Following is a breakdown of all of the instructional cost data:

1. ACTUAL EXPENDITURES	SCHOOL YEAR		
	1975-76	1976-77	1977-78
Gas/Oil	$ 912.83	$ 495.74	$1,158.52
Instructional Handbooks & Training Materials	113.72	64.78	112.04
Tools	479.87	726.92	150.87
Batteries	106.54	142.24	29.26
Valve Seat Wheels	98.61	143.25	635.92
Aluminum	128.64	193.10	-
Paint Materials	118.56	101.06	277.73
Sewing Thread	54.48	5.92	-
Sander Belts	51.76	77.44	34.81
Heat Gun	46.96	-	-
Directory	31.80	2.01	-
Spring Gun	18.32	-	-
Lamp	33.30	-	31.16
Rack	14.58	14.58	-
Inspection Aids	10.05	-	-
Reamer	9.38	-	-
Air Hose	223.74	-	23.69
Tires	152.12	-	-
Oxygen	143.23	-	-
Nuts/Bolts/Screws	96.50	772.75	219.80
Rivets	155.06	472.26	367.11
Turco	60.31	-	-
Glass Bead Abrasive	46.11	47.09	92.22
Generator	42.82	-	-
Fuses	12.10	-	10.32
Resin	56.02	-	-
Spot Check Equipment	254.40	-	-
Masks/Gloves, etc.	223.80	168.12	-

continued . . . .

MIRAMAR COLLEGE PROGRAM REVIEW WORKSHEET

PROGRAM AVIATION MAINTENANCE

Instructional cost data:

1. ACTUAL EXPENDITURES	SCHOOL YEAR 1975-76	1976-77	1977-78
Tarpaulin	$ 181.96	$ -	$ -
Acetone	30.95	-	-
Gaskets, Valves, Plugs	1,042.36	86.41	320.44
Water	4.56	-	-
Bulb	17.98	-	-
Centrifuge	10.60	-	-
Gauges	21.07	64.09	-
Cap Screen	254.00	-	-
Insulation	1.01	-	-
Business Cards	12.72	-	-
Welding Rods	391.94	-	-
Fuel Pumps	302.10	58.30	-
Pipe Coupler	22.60	56.63	-
Battery Charger	10.42	11.79	-
Time Cards	70.49	-	-
Fluid - Hydraulic	120.10	176.49	-
Wire	80.59	55.12	-
Dopes	568.69	333.90	343.23
Counter Sinks	40.70	-	-
Tubine	157.82	-	489.16
Cable/Thimbles	119.25	22.79	-
Hand Tap	593.00	-	-
Rags	248.33	188.31	103.56
Duplicating/Materials	64.55	175.40	208.39
Paper/Pens/Pencils	176.06	54.86	104.60
Measuring Tape	28.53	107.85	2.23
Protectors	113.06	-	-
File Folders/File Index	5.07	58.03	.67
Index Cards	98.21	33.48	-

continued . . . .

MIRAMAR COLLEGE PROGRAM REVIEW WORKSHEET

PROGRAM AVIATION MAINTENANCE

Instructional cost data:

1. ACTUAL EXPENDITURES	SCHOOL YEAR 1975-76	1976-77	1977-78
Knives	$ 6.00	$ -	$ -
Binders	61.61	66.67	184.11
Magnets	2.40	-	-
Rope	5.30	-	-
Cups	-	.79	-
Lubricant	-	8.28	-
Staplers/Hole Punch, etc.	-	60.23	-
General Materials	-	104.53	-
Soldering Tips	-	59.06	-
Power Supply	-	50.88	-
Brake Bleeder System	-	46.64	-
Cutting/Finishing Wheels	-	51.15	-
Bridge	-	21.62	-
Dome Breather Hole	-	53.72	-
Control Cables	-	75.00	-
Quick-Sorb	-	8.75	-
V-Belts	-	9.37	-
Crankshaft Bearing	-	7.04	-
Dial Test Indicator	-	76.32	-
Permit Renewal	-	21.25	-
Magnaglo Powder	-	49.29	-
Metal Protector	-	38.54	19.72
Adjustable Die	-	10.47	-
Dhrome Drive	-	10.27	-
Arbor	-	14.63	-
Calipers	-	147.33	-
Collets, etc.	-	129.32	-
Capacitors	-	96.00	-
Meter	-	23.85	-

continued . . . .

MIRAMAR COLLEGE PROGRAM REVIEW WORKSHEET

PROGRAM AVIATION MAINTENANCE

Instructional cost data:

1. ACTUAL EXPENDITURES	SCHOOL YEAR 1975-76	1976-77	1977-78
Bearing Check	$ -	$ 76.02	$ -
Name Plate	-	9.92	-
Engine Starter	-	17.70	20.00
Screw Assembly	-	106.84	-
Brush Set	-	15.07	-
Bearing	-	17.21	-
Poly Brush - Spray	-	384.43	-
Shears	-	-	45.63
Thermometer	-	-	15.90
Compass	-	-	2.01
Repairs	-	-	258.40
Honing Stones	-	-	46.53
Clover	-	-	11.34
Cellophane/Styrofoam	-	-	133.31
Spar Assembly	-	-	425.06
Bunks	-	-	85.07
Splices	-	-	72.88
Cylinders	-	-	661.44
AM/MS Standards	-	-	544.10
Carburator Cleaner	-	-	255.10
Cement	-	-	28.73
Continential	-	-	31.80
Terminal/etc.	-	-	306.97
Gloop	-	-	3.13
TOTAL	$8,559.64	$6,778.90	$7,866.96

MIRAMAR COLLEGE PROGRAM REVIEW WORKSHEET

PROGRAM AVIATION MAINTENANCE

2.

$ AMOUNT BUDGETED	AMOUNT SPENT			OVERSPENT BY	UNDERSPENT BY
	1976	1977	1978		
$13,453.00	$8,559.64				$4,893.36
$9,479.00		$6,778.90			$2,700.10
$11,293.00			$7,866.96		$3,426.04

3. Trends in instructional expenditures:

Increasing _____ Constant *√ Decreasing _____

*There has been a minor decrease of approximately 8% overall.

The total instructional expenditure for all three years was $23,205.50. The 1975-76 year expenditures represented 37% of the total, the 1976-77 year expenditures maintained 29% of the three year total, and 1977-78 represented 34% of the total. The average annual expenditure for this budget is $7,735.17.

4.

AREAS OF CONSTANT EXPENDITURES:	TOTAL SPENT (3 YEARS)
Gas/Oil	$2,567.09
Instructional Training Material	$290.54
Tools	$1,357.66
Batteries	$278.04
Valve Seat Wheels	$877.78
Paint Supplies	$497.35
Sander Belts	$164.01
Nuts/Bolts, etc.	$1,089.05
Rivets	$994.43
Glass Bead Abrasive	$185.42
Gaskets, Valves, Plugs	$1,449.21
Dopes	$1,245.82
Duplicating	$448.34
Rags	$540.20
Paper/Pencils, etc.	$335.52
Binders	$312.39
This amounts to 54% of all expenditures for the 3 year period.	

Instructional cost data, continued:

For the past three years this program has remained below budget in its expenditures. In the event of increased enrollment, the impact of this budget will undoubtedly result in more expenditures to fulfill student needs.

VII THE AUDIO VISUAL/LEARNING RESOURCE COST DATA

The following are the actual Audio Visual/Learning Resource expenditures for all three academic years in the Aviation Maintenance program. For your information, this does not include Evening program expenditures (destroyed due to re-organization) and the data was not stored in an orderly manner. Therefore, there is no guarantee that all information was examined.

MIRAMAR COLLEGE PROGRAM REVIEW WORKSHEET

PROGRAM AVIATION MAINTENANCE

Audio-visual/learning resource cost data:

The audio-visual/learning resource budget lists all instructional aids, such as, films, tapes, etc., used in the Aviation Maintenance program:

1. ACTUAL EXPENDITURES	SCHOOL YEAR		
	1975-76	1976-77	1977-78
Subscriptions	$164.47	$665.83	$446.24
Books	656.84	92.00	-
Films	25.50	-	-
Periodicals	79.87	51.47	-
Film Viewer	45.00	-	-
Microfilm Bulbs	-	44.22	-
Audio Visual Program	-	53.00	-
Membership	-	20.00	-
Slide Tray	-	18.89	-
Learning Unit	-	-	$386.90
TOTAL	$971.68	$945.41	$833.14

MIRAMAR COLLEGE PROGRAM REVIEW WORKSHEET

PROGRAM AVIATION MAINTENANCE

2.

$ AMOUNT BUDGETED	AMOUNT SPENT			OVERSPENT BY	UNDERSPENT BY
	1976	1977	1978		
$80.00	$971.68			$891.68	
-0-		$945.41		$945.41	
-0-			$833.14	$833.14	

3. Trends in audio-visual/learning resource expenditures:

Increasing _____ Constant _____ Decreasing ✓

$ decrease from 75 - 78 = 14%

The total instructional expenditures for all three years was $2,750.23. The 1975-76 yearly expenditures represented 36% of the total, the 1976-77 yearly expenditures maintained 34% of the three year total, and 1977-78 represented 30% of the total. The average annual expenditure for this budget is $916.74.

4.

AREAS OF CONSTANT EXPENDITURES:	TOTAL SPENT (3 YEARS)
Subscriptions	$1,276.54
Books	$748.84
This amounts to 74% of all expenditures for the 3 year period.	

Subscriptions and books to continue to build library.

Required - "Federal Air Regulations" - bi-weekly - 10-15 volumes, to reflect changes in industry.

Audio-visual/learning resource cost data, continued:

There has been only $80.00 budgeted for these resources. Therefore, the budget has been overspent during 1976, 1977 and 1978. The constant expenditures of subscriptions, books and films are required expenses to maintain program equality. The only area in which increased enrollment would impact on this budget would possibly be books, but this is an area where budgetary controls can be maintained.

VIII THE PROGRAM SUMMARY

Within this report we have tried to cover as many aspects as possible in conjunction with the Aviation Maintenance program. The points of information covered within this report are:

A) An interview with the program chairman to investigate specific areas which should be brought to your attention.

B) A summary of the program staffing situation over the past three academic years to give you a better perspective on its evolution.

C) The program enrollment data which includes ADA, WSCH and other enrollment data and summaries. This segment will give you ideas on enrollment trends for the past three years.

D) The job placement summary in which employment data has been gathered for the past three years in addition to the local and national job outlook.

E) The capital equipment outlay budget in which information was monitored and tabulated to show a three year comparison.

F) The instructional budget was tabulated in the same manner as the above budget but this will give you a more detailed description of the majority of classroom expenditures.

G) The audio-visual/learning resource expenditures which will give you a fairly good idea of the costs involved with instructional materials.

Program summary, continued:

In closing, this program evaluation took place during the reorganization of the District and the combination of the day and evening academic programs. During this period of change, the best effort was made to give a good, fair report.

These are some observations of the program:

1. The enrollment figures have grown, therefore showing interest in this program.

2. The employment/placement outlook in this field can be labeled fair-to-good depending upon the choice of the local or national job market.

3. The program budgets have basically remained within their prescribed boundaries.

4. This program is required to fulfill federal and other agencies (F.A.A., etc.) course requirements which add to all respective workloads and budgets of the program.

5. With all of its equipment, supplies, etc., this program is an expensive program to maintain.

Once again, it is hoped that this report will be of assistance to you.

IX THE PROGRAM EVALUATION SOURCES

.The University of California at Irvine - Career Planning and Placement Center - The Ziggy Project, 1979

.The Occupational Outlook Handbook - The United States Department of Labor - 1976-77 Edition

.The Educational Program Vitalit- Report - Los Angeles Community College District, 1977

.The Place of Program Completions in Vocational Education Programs - Coast Community College District, 1975-76, -77, -78

.The Monterey Peninsula College Proram Review - Monterey Peninsula College, 1978

.The Labor Supply and Demand - San Diego County Employment Development Department - April - June, 1979

.The Job Outlook in Brief - The United States Department of Labor - Bureau of Labor Statistics, Spring, 1978

.The Manpower 1975 - 1980 - Employment Development Department - San Diego County, May 1976

.Elame, C., Aviation Maintenance Chairperson - Miramar College

.Plummer, K. - American Airlines, Operations Department, San Diego, California

.Blackerby, K. - Continental Airlines, Employment Office, Los Angeles, California

.Crown Aviation, Personnel Department, San Diego, California

.Jackson, J.J. - General Dynamics, Personnel Department, San Diego, California

.Gibb Aviation, Personnel Department, San Diego, California

.Rohr Industries, Personnel Department, San Diego, California

.Ryan Aeronautics, Personnel Department, San Diego, California

.Solar Industries, Personnel Department, San Diego, California

.Cluff, R. - Western Airlines, Employment Office, Los Angeles, California

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